



# MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, New Zealand, Japanese, and European Union Standards

## 1. PRODUCT IDENTIFICATION

TRADE/MATERIAL NAME:  
COLORS AVAILABLE:

### DYE-N-SEAL SOLVENT BASED DYE

Gold, Raw Sienna, A-Amber, Caramel, A-Caramel, Terra Cotta, Mahogany, A-Mahogany, Chocolate Brown, Saddle Brown, A-Mission Brown, A-Coffee, Walnut, A-Walnut, Burnt Sienna, Chestnut, Maroon, Sepia, Eggplant, Patriot Blue, Turquoise, A-Turquoise, Slate Blue, Pine Green, Green, Forest Green, A-Jade, A-Olive Green, Midnight Black, Black, A-Ebony, Grey  
Solvent Dye Mixture

CHEMICAL NAMES:

PRODUCT USE:

SYNONYMS:

U.N. NUMBER:

U.N. DANGEROUS GOODS CLASS/SUBSIDIARY RISK:

HAZCHEM CODE (AUSTRALIA):

POISONS SCHEDULE NUMBER (AUSTRALIA):

SUPPLIER/MANUFACTURER'S NAME (USA/Canada):

ADDRESS:

EMERGENCY PHONE:

Concrete Tint

Not Applicable

Not applicable

Not applicable

Not applicable

Not applicable

**AMERICAN DECORATIVE CONCRETE SUPPLY COMPANY**

120 Commercial Ave. Lowell, Arkansas 72745

1-800-255-3924 (CHEM-TEL) in U.S., Canada, Puerto Rico,

U.S. Virgin Islands

01-813-248-0585 (outside areas above, call collect)

1.800.592.9320

BUSINESS PHONE:

## 2. COMPOSITION and INFORMATION ON INGREDIENTS

**EU LABELING/CLASSIFICATION:** This product does not meet the definition of any hazard class as defined by the European Union Council Directive 67/548/EEC or subsequent Directives. The toxicological properties of this product have not been thoroughly investigated.

**EU CLASSIFICATION:** Not applicable.

**EU RISK PHRASES:** Not applicable.

**TSCA Status:** The components of this product are not included in the public TSCA Inventory. According to the manufacturer/importer of the components of this product, "All components of this product are in compliance with the Toxic Substance Control Act."

CHEMICAL NAME	CAS #	EINECS #	AICS Inventory Listing	% w/v	EU CLASSIFICATION FOR COMPONENTS
Black Dye	Proprietary	Unlisted	Listed	Proprietary	Hazard Classification: Not established. Risk Phrases: Not established.
Blue Dye	Proprietary	Unlisted	Listed	Proprietary	Hazard Classification: Not established. Risk Phrases: Not established.
Brown Dye	Proprietary	Unlisted	Not Listed	Proprietary	Hazard Classification: Not established. Risk Phrases: Not established.
Red Dye	Proprietary	Unlisted	Listed	Proprietary	Hazard Classification: Not established. Risk Phrases: Not established.
Yellow Dye	Proprietary	Unlisted	Not Listed	Proprietary	Hazard Classification: Not established. Risk Phrases: Not established.

**NOTE:** ALL Canadian WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. All European Union, Australian (NOHSC:2011, 8.30-8.48) information, and Japanese Industrial Standard (JIS Z 7250: 2000) required information is included.  
See Section 16 for full text of Ingredient Risk Phrases

### 3. HAZARD IDENTIFICATION

**EU LABELING/CLASSIFICATION:** This product does not meet the definition of any hazard class as defined by the European Union Council Directive 67/548/EEC or subsequent Directives. The toxicological properties of this product have not been thoroughly investigated.

**EU CLASSIFICATION:** Not applicable.

**EU RISK PHRASES:** Not applicable.

#### EMERGENCY OVERVIEW:

**Product Description:** This product is an odorless powder that comes in a variety of colors. **Health Hazards:** Overexposures to this product may slightly to moderately irritate eyes, skin, and other contaminated tissues. The toxicological properties of this product have not been thoroughly investigated. **Flammability Hazards:** This product must be substantially preheated for ignition to become a hazard. If involved in a fire, this product will release smoke, acrid vapors and toxic gases (e.g., carbon oxides, nitrogen oxides, copper oxides, and chromium oxides). **Reactivity Hazards:** This product is not reactive. **Environmental Hazards:** Large quantities released to the environment may have an adverse effect. **Emergency Considerations:** Emergency responders should wear appropriate protection for situation to which they respond.

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** The health hazard information provided below is pertinent to employees using this product in an occupational setting. The toxicological properties of this product have not been thoroughly investigated. The following paragraphs describe the symptoms of exposure by route of exposure.

**INHALATION:** Inhalation overexposures airborne dusts of this product may cause nasal irritation, coughing and sneezing.

**CONTACT WITH SKIN or EYES:** Skin contact may cause abrasion, redness, and discomfort. Skin contact may discolor contaminated areas. Prolonged or repeated skin overexposure may cause dermatitis (dry, red skin). Direct eye contact with the product may cause stinging, tearing, and redness. Dust can cause mechanical irritation to the eye. Because the eye tissue may be stained, the vision may be temporarily blurred.

**SKIN ABSORPTION:** The components of this product are not known to be absorbed through intact skin.

**INGESTION:** Ingestion is not a significant route of occupational overexposure and is unlikely to occur. If this product is swallowed, it may irritate the mouth, throat, esophagus and other tissues of the digestive system. Symptoms of ingestion may include nausea, vomiting, and diarrhea. Additionally, the mouth, teeth, and tissues of the throat may be discolored.

**INJECTION:** Accidental injection of this product, via laceration or puncture by a contaminated object may cause redness at the site of injection.

**HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.** Overexposure to this product may cause the following health effects:

**ACUTE:** The ink may stain hair, skin, and other contaminated tissue. Overexposures to this product may slightly to moderately irritate eyes, skin, and other contaminated tissue.

**CHRONIC:** Prolonged or repeated skin overexposures may cause dermatitis (dry red skin).

**TARGET ORGANS:** ACUTE: Skin, eyes. CHRONIC: Skin.

### 4. FIRST-AID MEASURES

If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Take a copy of label and MSDS to physician or health professional with the contaminated individual.



**SKIN EXPOSURE:** If adverse skin effects occur, discontinue use and flush contaminated area. Seek medical attention if adverse effect occurs after flushing.

**EYE EXPOSURE:** If this product contaminates the eyes, rinse eyes under gently running water. Use sufficient force to open eyelids and then "roll" eyes while flushing. Minimum flushing is for 15 minutes. The contaminated individual must seek medical attention if any adverse effect continues after rinsing.

**INHALATION:** If airborne dusts of this product are inhaled, causing irritation, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if adverse effect continues after removal to fresh air.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM	
HEALTH HAZARD (BLUE)	1
FLAMMABILITY HAZARD (RED)	1
PHYSICAL HAZARD (YELLOW)	0

PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	See SECTION 8		See SECTION 8

For Routine Industrial Use and Handling Applications

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate  
3 = Serious 4 = Severe \* = Chronic hazard

#### 4. FIRST-AID MEASURES (Continued)

**INGESTION:** If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, DO NOT INDUCE VOMITING. Never induce vomiting or give diluents (milk or water) to someone who is **unconscious, having convulsions, or unable to swallow**. If victim is convulsing, maintain an open airway and obtain immediate medical attention.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Pre-existing dermatitis and other skin conditions may be aggravated by overexposures to this product.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate exposure.

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#### 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not flammable.

**AUTOIGNITION TEMPERATURE:** Not established.

**FLAMMABLE LIMITS** (in air by volume, %):

**LOWER (LEL):** Not applicable.

**UPPER (UEL):** Not applicable.

**FIRE EXTINGUISHING MATERIALS:** This product is combustible. The following extinguishing materials are recommended for fires involving this product.

**WATER SPRAY:** OK

**FOAM:** OK

**HALON:** NO

**CARBON DIOXIDE:** OK

**DRY CHEMICAL:** OK

**OTHER:** NO

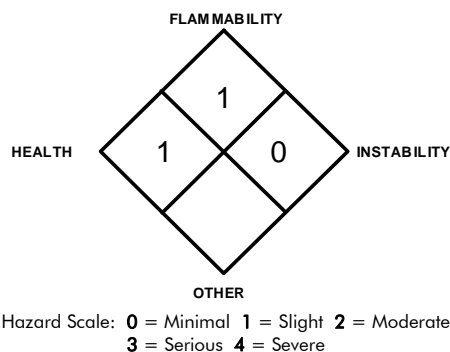
**UNUSUAL FIRE AND EXPLOSION HAZARDS:** This product must be substantially preheated for ignition to become a hazard. When involved in a fire, this material may decompose and produce irritating vapors and toxic gases (e.g., carbon oxides, nitrogen oxides, copper oxides, and chromium oxides). The accumulation of dusts of this product can create a serious hazard of and air/dust explosion.

**EXPLOSION SENSITIVITY TO MECHANICAL IMPACT:** Not sensitive.

**EXPLOSION SENSITIVITY TO STATIC DISCHARGE:** Although this product is not sensitive to static discharge, dusts of organic compounds, such as this product can be ignited by static discharge, especially if large amounts of dusts are allowed to accumulate. All equipment in used in the handling of this product should be electrically grounded.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus (SCBA) and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if it can be done without risk to personnel. Water spray can be used to cool fire-exposed containers. Water fog or spray can also be used by trained firefighters to disperse this product's vapors and to protect personnel. The runoff water from these products can discolor contaminated objects. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

#### NFPA RATING



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#### 6. ACCIDENTAL RELEASE MEASURES

**SPILL AND LEAK RESPONSE:** Trained personnel using pre-planned procedures should respond to uncontrolled releases. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. Eliminate all sources of ignition before cleanup begins. Use non-sparking tools. Minimum Personal Protective Equipment should be double-gloves (rubber over latex gloves) and rubber apron, splash goggles or safety glasses. The atmosphere must have levels of components lower than those listed in Section 8, (Exposure Limits and Personal Protection) and at least 19.5 percent oxygen before personnel can be allowed into the area without Self-Contained Breathing Apparatus (SCBA). Sweep up or vacuum spilled product carefully, avoiding the generation of airborne dusts. Decontaminate the area thoroughly. If necessary, discard all stained response equipment or rinse with soapy water before returning such equipment to service. Place all spill residue in a double plastic bag and seal. Dispose of in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of the EU and its member states, Australia, New Zealand, Japan, or Canada and its Provinces.

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#### 7. HANDLING and USE

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this material ON YOU or IN YOU. Do not eat, drink, smoke, or apply cosmetics while handling this product. Wash hands thoroughly after handling this product or containers of this product. Avoid breathing airborne dusts generated by this product. Use in a well-ventilated location. Follow SPECIFIC USE INSTRUCTIONS supplied with product.

## 7. HANDLING and USE (Continued)

**STORAGE AND HANDLING PRACTICES:** Employees must be trained to properly use this product. Keep away from heat, sparks, and other sources of ignition. Use non-sparking tools. Open containers slowly on a stable surface. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Storage areas should be made of fire resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. Empty containers may contain residual dusts that are combustible; therefore, empty packages should be handled with care.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, and local procedures or with procedures of the EU and its member states, Australia, New Zealand, Japan, or Canada and its Provinces.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Exhaust directly to the outside, taking necessary precautions for environmental protection. If necessary, refer to Australian National Code of Practice for the Control of Workplace Hazardous Substances [NOHSC: 2007 (1994)] for further information.

### EXPOSURE LIMITS/GUIDELINES:

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR							
		ACGIH-TLV		OSHA-PEL		NIOSH-RELS		NIOSH	OTHER
		TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	IDLH mg/m <sup>3</sup>	mg/m <sup>3</sup>
Ameripolish Solvent Based Dyes Ameripolish Solvent Based Dye is composed of a variety of materials as described below. It is recommended that the following exposure limits for "Particulates Not Otherwise Classified" be used to address occupational exposures to this mixture.		10 (Inhalable Particulate) 3 (Respirable Particulate)	NE	5 (Respirable Fraction) or 50 mppcf 15 (Total dust) or 15 mppcf	NE	NE	NE	NE	DFG MAK: TWA = 4 (Inhalable Fraction), 1.5 (Respirable Fraction)
Black Dye	Proprietary	NE	NE	NE	NE	NE	NE	NE	NE
Blue Dye	Proprietary	NE	NE	NE	NE	NE	NE	NE	NE
Brown Dye	Proprietary	NE	NE	NE	NE	NE	NE	NE	NE
Red Dye	Proprietary	NE	NE	NE	NE	NE	NE	NE	NE
Yellow Dye	Proprietary	NE	NE	NE	NE	NE	NE	NE	NE

NE = Not Established. See Section 16 for Definitions of Terms Used.

**INTERNATIONAL OCCUPATIONAL EXPOSURE LIMITS:** Not applicable.

*The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132), equivalent standards of Canada (including CSA Standard Z94.4-02 and CSA Standard Z94.3-02), standards of EU member states (including EN 529:2005 for respiratory PPE, CEN/TR 15419:2006 for hand protection, and CR 13464:1999 for face/eye protection), or standards of Australia (including AS/NZS 1715:1994 for respiratory PPE, AS/NZS 4501.2:2006 for protective clothing, AS/NZS 2161.1:2000 for glove selection, and AS/NZS 1336:1997 for eye protection). Please reference applicable regulations and standards for relevant details.*

**RESPIRATORY PROTECTION:** If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-02, the European Standard EN 529:2005, and EU member state standards, the Australian Standard 1716-Respiratory Protective Devices and Australian Standard 1715-Selection, Use, and Maintenance of Respiratory Protective Devices, New Zealand standards, or Japanese standards. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

**EYE PROTECTION:** Wear safety glasses with side shields (or goggles) and a face shield. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian CSA Standard Z94.3-02, or the European Standard CR 13464:1999, the Australian Standard 1337-Eye Protection for Industrial Applications and Australian Standard 1336-Recommended Practices for Eye Protection in the Industrial Environment, New Zealand standards, or Japanese standards.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

**HAND PROTECTION:** Wear Butyl rubber, Viton™, Barrier (PE/PA/PE), or Tychem™ SL gloves. Check gloves for leaks. Wash hands before putting on gloves and after removing gloves. If necessary, refer to U.S. OSHA 29 CFR 1910.138, appropriate Standards of Canada, the Australian Standard 2161-Industrial Safety Gloves and Mittens and the European Standard CEN/TR 15419:2006, New Zealand standards, or Japanese standards.

**BODY/SKIN PROTECTION:** Use body protection appropriate for task (e.g., coveralls or apron). If necessary, refer to appropriate Standards of Canada, the European Standard CEN/TR 15419:2006, Australian Standard 3765-Clothing for Protection Against Hazardous Chemicals, New Zealand standards, or Japanese standards. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136 and the Canadian CSA Standard Z195-02, *Protective Footwear*.

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## 9. PHYSICAL and CHEMICAL PROPERTIES

**BOILING POINT:** Not established.

**EVAPORATION RATE ( $L^2$ -BUAC = 1):** Not applicable.

**VAPOR PRESSURE @ 20°C (AIR = 1):** Not applicable.

**ODOR THRESHOLD:** Odorless.

**VAPOR DENSITY (AIR = 1):** Not applicable.

**COEFFICIENT WATER/OIL DISTRIBUTION:** Not applicable.

**APPEARANCE, ODOR, AND COLOR:** This product is an odorless powder that comes in a variety of colors.

**HOW TO DETECT THIS SUBSTANCE (WARNING PROPERTIES IN EVENT OF ACCIDENTAL RELEASE):** The appearance may be a characteristic to distinguish a release of this product.

**FREEZING/MELTING POINT:** Not established.

**SOLUBILITY IN WATER:** Insoluble.

**SPECIFIC GRAVITY (WATER = 1):** Not established.

**PH:** Not applicable.

**VOC CONTENT:** This product contains 0% (0 g/L) VOCs.

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## 10. STABILITY and REACTIVITY

**STABILITY:** This product is stable when properly stored at normal temperature and pressures (see Section 7, Handling and Storage).

**DECOMPOSITION PRODUCTS:** If exposed to extremely high temperatures, thermal decomposition may generate irritating fumes and toxic gases (e.g., carbon oxides, nitrogen oxides, copper oxides, and chromium oxides).

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** This product is incompatible with strong oxidizers and reducers.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID:** Avoid exposure to or contact with extreme temperatures, heat, sparks, flames, and incompatible chemicals.

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## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** The toxicological properties of this product have not been thoroughly investigated. The specific toxicology data available for the components of this product are as follows:

**BLACK DYE:**

LD<sub>50</sub> (oral, rat) > 2000 mg/kg

**BLUE DYE:**

LD<sub>50</sub> (oral, rat) > 5000 mg/kg

**IRRITANCY OF PRODUCT:** Overexposures to this product may slightly to moderately irritate eyes, skin, and other contaminated tissues.

**SENSITIZATION OF PRODUCT:** This product is not known to be a human skin or respiratory sensitizer.

**SUSPECTED CANCER AGENT:** Components of this product are listed by agencies tracking the carcinogenic potential of chemical compounds as follows:

**CHROMIUM [III] COMPOUNDS (BLACK, BROWN, RED, AND YELLOW DYES):** IARC-3 (Not Classifiable as to Carcinogenicity to Humans)

The other components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and therefore are neither considered to be nor suspected to be cancer causing agents by these agencies.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects this product and its components on human and animal reproductive systems.

**MUTAGENICITY:** The components of this product are not reported to cause human mutagenic effects.

**EMBRYOTOXICITY:** The components of this product are not reported to cause human embryotoxic effects.

**TERATOGENICITY:** The components of this product are not reported to cause teratogenic effects in humans.

**REPRODUCTIVE TOXICITY:** The components of this product are not reported to cause human reproductive effects.

*A mutagen is a chemical that causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryo toxin is a chemical that causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical that causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance that interferes in any way with the reproductive process.*

**ACGIH BIOLOGICAL EXPOSURE INDICES (BEIS):** Currently, there are no ACGIH Biological Exposure Indices (BEIs) determined for the components of this product.

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## 12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

**ENVIRONMENTAL STABILITY:** This product will be relatively stable under ambient environmental conditions.

**EFFECT OF MATERIAL ON PLANTS OR ANIMALS:** No specific information is currently available on the effect of this product on plants or animals in the environment. This product may be harmful to contaminated plant and animal life, especially if released to the environment in large quantities.

**EFFECT OF CHEMICAL ON AQUATIC LIFE:** No information is currently available on the effect of this product on aquatic plants or animals in the environment. Release of this product to an aquatic environment may be harmful to aquatic plant and animal life in contaminated bodies of water, especially in large quantities.

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## 13. DISPOSAL CONSIDERATIONS

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with regulations of Canada and its Provinces, Australia, New Zealand, Japan, the EU, or EU member States. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

**U.S. EPA WASTE NUMBER:** Wastes of this product should be tested per the Toxicity Characteristic Leaching Procedure requirements of RCRA to determine if such wastes meet the following characteristics: D007 (Chromium), regulated level of Chromium is 5.0 mg/L.

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## 14. TRANSPORTATION INFORMATION

**THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.**

PROPER SHIPPING NAME: Not Regulated

HAZARD CLASS NUMBER and DESCRIPTION: Not applicable

UN IDENTIFICATION NUMBER: Not applicable

PACKING GROUP: Not applicable

DOT LABEL(S) REQUIRED: Not applicable

EMERGENCY RESPONSE GUIDEBOOK NUMBER (2004): Not applicable

MARINE POLLUTANT: This product is not classified by the U.S. DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** This product is not classified as Dangerous Goods, per regulations of Transport Canada.

**INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):** This product is not classified as dangerous goods under rules of IATA.

**INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:** This product is not classified as Dangerous Goods by the International Maritime Organization.

**EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):** This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

**AUSTRALIAN FEDERAL OFFICE OF ROAD SAFETY CODE FOR THE TRANSPORTATION OF DANGEROUS GOODS BY ROAD OR RAIL:** This product is not classified as dangerous goods, per regulations of the Federal Office of Road Safety.

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## 15. REGULATORY INFORMATION

**UNITED STATES REGULATIONS:**

**U.S. SARA REPORTING REQUIREMENTS:** Components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Chromium Compounds (Black, Brown, Red, and Yellow Dyes)	No	No	Yes

**U.S. SARA HAZARD CATEGORIES (SECTION 311/312, 40 CFR 370-21):** ACUTE: Yes; CHRONIC: No; FIRE: No; REACTIVE: No; SUDDEN RELEASE: No

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## 15. REGULATORY INFORMATION (Continued)

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

**U.S. TSCA INVENTORY STATUS:** The components of this product are not included in the public TSCA Inventory. According to the manufacturer/importer of the components of this product, "All components of this product are in compliance with the Toxic Substance Control Act."

**OTHER U.S. FEDERAL REGULATIONS:** Not applicable.

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** The components of this product are not on the California Proposition 65 lists.

**ANSI LABELING (Z129.1): CAUTION! MAY CAUSES SKIN, EYE, AND RESPIRATORY TRACT IRRITATION.** Keep away from heat and flame. Avoid contact with skin, eyes, and clothing. Avoid breathing airborne dusts. Do not taste or swallow. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear appropriate eye, hand, and body protection. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, foam, dry chemical, or CO<sub>2</sub>. **IN CASE OF SPILL:** Sweep up, wipe up, or vacuum spilled product. Place residual in appropriate container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations or those of Canada, EU Member States or Australia. Consult Material Safety Data Sheet for additional information.

### CANADIAN REGULATIONS:

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are not specified on the DSL or NDSL. This product may be subject to the New Substances Notifications Regulations (Chemicals and Polymers) of the Canadian Environmental Protection Act, 1999.

**OTHER CANADIAN REGULATIONS:** Not applicable.

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** The components of this product are not on the CEPA Priorities Substances Lists.

**CANADIAN WHMIS CLASSIFICATION AND SYMBOLS:** Not applicable.

### EUROPEAN UNION INFORMATION:

**EU LABELING/CLASSIFICATION:** This product does not meet the definition of any hazard class as defined by the European Union Council Directive 67/548/EEC or subsequent Directives. The toxicological properties of this product have not been thoroughly investigated.

EU CLASSIFICATION: Not applicable.

EU RISK PHRASES: Not applicable.

EU SAFETY PHRASES: Not applicable.

EUROPEAN UNION ANNEX II HAZARD SYMBOL: Not applicable.

### AUSTRALIAN INFORMATION:

**AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS:** The Brown and Yellow Dye components of this product are not listed on the AICS. Any chemical not included in AICS is regarded as a new industrial chemical unless it is outside the scope of the Industrial Chemicals (Notification and Assessment) Act 1989 OR is otherwise exempt from notification. New industrial chemicals must be notified and assessed before being manufactured or imported into Australia.

**HAZARDOUS SUBSTANCES INFORMATION SYSTEM (HSIS):** No component of this product is listed in the HSIS.

**CLASSIFICATION:** Not applicable.

RISK PHRASES: Not applicable.

SAFETY PHRASES: Not applicable.

**POISONS SCHEDULE NUMBER:** Not applicable.

**ADDITIONAL LABELING:** Not applicable.

## 15. REGULATORY INFORMATION (Continued)

### NEW ZEALAND INFORMATION:

**HAZARDOUS SUBSTANCES AND NEW ORGANISMS ACT (1996):** The components of this product are not registered as hazardous substances with the Environmental Risk Management Authority.

### JAPANESE INFORMATION:

**JAPANESE ENCS:** The components of this product are not on the ENCS Inventory.

**JAPANESE MINISTRY OF ECONOMY, TRADE, AND INDUSTRY (METI) STATUS:** The components of this product area not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

**POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW:** The components of this product are not a listed as a Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.

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## 16. OTHER INFORMATION

### PREPARED BY:

CHEMICAL SAFETY ASSOCIATES, Inc.  
PO Box 3519, La Mesa, CA 91944-3519  
800/441-3365

### DATE OF PRINTING:

September 23, 2008

## DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these, which are commonly used, include the following:

**CAS #:** This is the Chemical Abstract Service Number that uniquely identifies each constituent.

### EXPOSURE LIMITS IN AIR:

**CEILING LEVEL:** The concentration that shall not be exceeded during any part of the working exposure.

**DFG MAK Germ Cell Mutagen Categories:** **1:** Germ cell mutagens which have been shown to increase the mutant frequency in the progeny of exposed humans. **2:** Germ cell mutagens which have been shown to increase the mutant frequency in the progeny of exposed mammals. **3A:** Substances which have been shown to induce genetic damage in germ cells of human of animals, or which produce mutagenic effects in somatic cells of mammals *in vivo* and have been shown to reach the germ cells in an active form. **3B:** Substances which are suspected of being germ cell mutagens because of their genotoxic effects in mammalian somatic cell *in vivo*; in exceptional cases, substances for which there are no *in vivo* data, but which are clearly mutagenic *in vitro* and structurally related to known *in vivo* mutagens. **4:** Not applicable (Category 4 carcinogenic substances are those with non-genotoxic mechanisms of action. By definition, germ cell mutagens are genotoxic. Therefore, a Category 4 for germ cell mutagens cannot apply. At some time in the future, it is conceivable that a Category 4 could be established for genotoxic substances with primary targets other than DNA [e.g. purely aneugenic substances] if research results make this seem sensible.) **5:** Germ cell mutagens, the potency of which is considered to be so low that, provided the MAK value is observed, their contribution to genetic risk for humans is expected not to be significant.

**DFG MAK Pregnancy Risk Group Classification: Group A:** A risk of damage to the developing embryo or fetus has been unequivocally demonstrated. Exposure of pregnant women can lead to damage of the developing organism, even when MAK and BAT (Biological Tolerance Value for Working Materials) values are observed. **Group B:** Currently available information indicates a risk of damage to the developing embryo or fetus must be considered to be probable. Damage to the developing organism cannot be excluded when pregnant women are exposed, even when MAK and BAT values are observed. **Group C:** There is no reason to fear a risk of damage to the developing embryo or fetus when MAK and BAT values are observed. **Group D:** Classification in one of the groups A-C is not yet possible because, although the data available may indicate a trend, they are not sufficient for final evaluation.

**IDLH-Immediately Dangerous to Life and Health:** This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury.

**LOQ:** Limit of Quantitation.

**MAK:** Federal Republic of Germany Maximum Concentration Values in the workplace.

**NE:** Not Established. When no exposure guidelines are established, an entry of NE is made for reference.

**NIC:** Notice of Intended Change.

**NIOSH CEILING:** The exposure that shall not be exceeded during any part of the workday. If instantaneous monitoring is not feasible, the ceiling shall be assumed as a 15-minute TWA exposure (unless otherwise specified) that shall not be exceeded at any time during a workday.

**NIOSH RELS:** NIOSH's Recommended Exposure Limits.

### EXPOSURE LIMITS IN AIR (continued):

**PEL-Permissible Exposure Limit:** OSHA's Permissible Exposure Limits. This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL that was vacated by Court Order.

**SKIN:** Used when there is a danger of cutaneous absorption.

**STEL-Short Term Exposure Limit:** Short Term Exposure Limit, usually a 15-minute time-weighted average (TWA) exposure that should not be exceeded at any time during a workday, even if the 8-hr TWA is within the TLV-TWA, PEL-TWA or REL-TWA.

**TLV-Threshold Limit Value:** An airborne concentration of a substance that represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour.

**TWA-Time Weighted Average:** Time Weighted Average exposure concentration for a conventional 8-hr (TLV, PEL) or up to a 10-hr (REL) workday and a 40-hr workweek.

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD

**RATINGS:** This rating system was developed by the National Paint and Coating Association and has been adopted by industry to identify the degree of chemical hazards.

### HEALTH HAZARD:

**0 (Minimal Hazard):** No significant health risk, irritation of skin or eyes not anticipated. *Skin Irritation:* Essentially non-irritating. PII or Draize = "0". *Eye Irritation:* Essentially non-irritating, or minimal effects which clear in < 24 hours [e.g. mechanical irritation]. Draize = "0". *Oral Toxicity LD<sub>50</sub> Rat:* < 5000 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit:* < 2000 mg/kg. *Inhalation Toxicity 4-hrs LC<sub>50</sub> Rat:* < 20 mg/L; **1 (Slight Hazard):** Minor reversible Injury may occur; slightly or mildly irritating. *Skin Irritation:* Slightly or mildly irritating. *Eye Irritation:* Slightly or mildly irritating. *Oral Toxicity LD<sub>50</sub> Rat:* > 500-5000 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit:* > 1000-2000 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* > 2-20 mg/L; **2 (Moderate Hazard):** Temporary or transitory injury may occur. *Skin Irritation:* Moderately irritating; primary irritant; sensitizer. PII or Draize > 0, < 5. *Eye Irritation:* Moderately to severely irritating and/or corrosive; reversible corneal opacity; corneal involvement or irritation clearing in 8-21 days. Draize > 0, ≤ 25. *Oral Toxicity LD<sub>50</sub> Rat:* > 50-500 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit:* > 200-1000 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* > 0.5-2 mg/L; **3 (Serious Hazard):** Major injury likely unless prompt action is taken and medical treatment is given; high level of toxicity; corrosive. *Skin Irritation:* Severely irritating and/or corrosive; may destroy dermal tissue, cause skin burns, dermal necrosis. PII or Draize > 5-8 with destruction of tissue. *Eye Irritation:* Corrosive, irreversible destruction of ocular tissue; corneal involvement or irritation persisting for more than 21 days. Draize > 80 with effects irreversible in 21 days. *Oral Toxicity LD<sub>50</sub> Rat:* > 1-50 mg/kg. *Dermal Toxicity LD<sub>50</sub>Rat or Rabbit:* > 20-200 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat:* > 0.05-0.5 mg/L;



## DEFINITION OF TERMS (Continued)

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

#### HEALTH HAZARD (continued):

**4** (Severe Hazard: Life-threatening; major or permanent damage may result from single or repeated exposure. *Skin Irritation*: Not appropriate. Do not rate as a "4", based on skin irritation alone. *Eye Irritation*: Not appropriate. Do not rate as a "4", based on eye irritation alone. *Oral Toxicity LD<sub>50</sub> Rat.* ≤ 1 mg/kg. *Dermal Toxicity LD<sub>50</sub> Rat or Rabbit.* ≤ 20 mg/kg. *Inhalation Toxicity LC<sub>50</sub> 4-hrs Rat.* ≤ 0.05 mg/L).

#### FLAMMABILITY HAZARD:

**0** (Minimal Hazard-Materials that will not burn in air when exposure to a temperature of 815.5°C [1500°F] for a period of 5 minutes.); **1** (Slight Hazard-Materials that must be pre-heated before ignition can occur. Material require considerable pre-heating, under all ambient temperature conditions before ignition and combustion can occur, including: Materials that will burn in air when exposed to a temperature of 815.5°C (1500°F) for a period of 5 minutes or less; Liquids, solids and semisolids having a flash point at or above 93.3°C [200°F] (e.g. OSHA Class IIIB, or; Most ordinary combustible materials [e.g. wood, paper, etc.]; **2** (Moderate Hazard-Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not, under normal conditions, form hazardous atmospheres in air, but under high ambient temperatures or moderate heating may release vapor in sufficient quantities to produce hazardous atmospheres in air, including: Liquids having a flash-point at or above 37.8°C [100°F]; Solid materials in the form of course dusts that may burn rapidly but that generally do not form explosive atmospheres; Solid materials in a fibrous or shredded form that may burn rapidly and create flash fire hazards (e.g. cotton, sisal, hemp; Solids and semisolids that readily give off flammable vapors.); **3** (Serious Hazard- Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures, or, unaffected by ambient temperature, are readily ignited under almost all conditions, including: Liquids having a flash point below 22.8°C [73°F] and having a boiling point at or above 38°C [100°F] and below 37.8°C [100°F] [e.g. OSHA Class IB and IC]; Materials that on account of their physical form or environmental conditions can form explosive mixtures with air and are readily dispersed in air [e.g., dusts of combustible solids, mists or droplets of flammable liquids]; Materials that burn extremely rapidly, usually by reason of self-contained oxygen [e.g. dry nitrocellulose and many organic peroxides]); **4** (Severe Hazard-Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and which will burn readily, including: Flammable gases; Flammable cryogenic materials; Any liquid or gaseous material that is liquid while under pressure and has a flash point below 22.8°C [73°F] and a boiling point below 37.8°C [100°F] [e.g. OSHA Class IA; Material that ignite spontaneously when exposed to air at a temperature of 54.4°C [130°F] or below [e.g. pyrophoric]).

#### PHYSICAL HAZARD:

**0** (*Water Reactivity*: Materials that do not react with water. *Organic Peroxides*: Materials that are normally stable, even under fire conditions and will not react with water. *Explosives*: Substances that are Non-Explosive. *Unstable Compressed Gases*: No Rating. *Pyrophorics*: No Rating. *Oxidizers*: No "0" rating allowed. *Unstable Reactives*: Substances that will not polymerize, decompose, condense or self-react.); **1** (*Water Reactivity*: Materials that change or decompose upon exposure to moisture. *Organic Peroxides*: Materials that are normally stable, but can become unstable at high temperatures and pressures. These materials may react with water, but will not release energy. *Explosives*: Division 1.5 & 1.6 substances that are very insensitive explosives or that do not have a mass explosion hazard. *Compressed Gases*: Pressure below OSHA definition. *Pyrophorics*: No Rating. *Oxidizers*: Packaging Group III; *Solids*: any material that in either concentration tested, exhibits a mean burning time less than or equal to the mean burning time of a 3:7 potassium bromate/cellulose mixture and the criteria for Packing Group I and II are not met. *Liquids*: any material that exhibits a mean pressure rise time less than or equal to the pressure rise time of a 1:1 nitric acid (65%)/cellulose mixture and the criteria for Packing Group I and II are not met. *Unstable Reactives*: Substances that may decompose, condense or self-react, but only under conditions of high temperature and/or pressure and have little or no potential to cause significant heat generation or explosive hazard. Substances that readily undergo hazardous polymerization in the absence of inhibitors.); **2** (*Water Reactivity*: Materials that may react violently with water. *Organic Peroxides*: Materials that, in themselves, are normally unstable and will readily undergo violent chemical change, but will not detonate. These materials may also react violently with water. *Explosives*: Division 1.4 – Explosive substances where the explosive effect are largely confined to the package and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. *Compressed Gases*: Pressurized and meet OSHA definition but < 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packaging Group II *Solids*: any material that, either in concentration tested, exhibits a mean burning time of less than or equal to the mean burning time of a 2:3 potassium bromate/cellulose mixture and the criteria for Packing Group I are not met.

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM HAZARD RATINGS (continued):

#### PHYSICAL HAZARD (continued):

**2** (continued) *Liquids*: any material that exhibits a mean pressure rise time less than or equal to the pressure rise of a 1:1 aqueous sodium chlorate solution (40%)/cellulose mixture and the criteria for Packing Group I are not met. *Reactives*: Substances that may polymerize, decompose, condense, or self-react at ambient temperature and/or pressure, but have a low potential for significant heat generation or explosion. Substances that readily form peroxides upon exposure to air or oxygen at room temperature); **3** (*Water Reactivity*: Materials that may form explosive reactions with water. *Organic Peroxides*: Materials that are capable of detonation or explosive reaction, but require a strong initiating source, or must be heated under confinement before initiation; or materials that react explosively with water. *Explosives*: Division 1.2 – Explosive substances that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but do not have a mass explosion hazard. *Compressed Gases*: Pressure ≥ 514.7 psi absolute at 21.1°C (70°F) [500 psig]. *Pyrophorics*: No Rating. *Oxidizers*: Packaging Group I *Solids*: any material that, in either concentration tested, exhibits a mean burning time less than the mean burning time of a 3:2 potassium bromate/cellulose mixture. *Liquids*: Any material that spontaneously ignites when mixed with cellulose in a 1:1 ratio, or which exhibits a mean pressure rise time less than the pressure rise time of a 1:1 perchloric acid (50%)/cellulose mixture. *Unstable Reactives*: Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a moderate potential to cause significant heat generation or explosion.); **4** (*Water Reactivity*: Materials that react explosively with water without requiring heat or confinement. *Organic Peroxides*: Materials that are readily capable of detonation or explosive decomposition at normal temperature and pressures. *Explosives*: Division 1.1 & 1.2-explosive substances that have a mass explosion hazard or have a projection hazard. A mass explosion is one that affects almost the entire load instantaneously. *Compressed Gases*: No Rating. *Pyrophorics*: Add to the definition of Flammability "4". *Oxidizers*: No "4" rating. *Unstable Reactives*: Substances that may polymerize, decompose, condense or self-react at ambient temperature and/or pressure and have a high potential to cause significant heat generation or explosion.).

### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

**HEALTH HAZARD: 0** (materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 10,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 200 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 2000 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 2000 mg/kg. Materials that are essentially non-irritating to the respiratory tract, eyes and skin. **1** (materials that, under emergency conditions, can cause significant irritation): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 5,000 ppm but less than or equal to 10,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 10 mg/L but less than or equal to 200 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 1000 mg/kg but less than or equal to 2000 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 500 mg/kg but less than or equal to 2000 mg/kg. Materials that cause slight to moderate irritation to the respiratory tract, eyes and skin. **2** (materials that, under emergency conditions, can cause temporary incapacitation or residual injury): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 3,000 ppm but less than or equal to 5,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 2 mg/L but less than or equal to 10 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 200 mg/kg but less than or equal to 1000 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 50 mg/kg but less than or equal to 500 mg/kg. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC<sub>50</sub> for acute inhalation toxicity, if its LC<sub>50</sub> is less than or equal to 5000 ppm and that does not meet the criteria for either degree of hazard 3 or degree of hazard 4. Compressed liquefied gases with boiling points between -30°C (-22°F) and -55°C (-66.5°F) that cause severe tissue damage, depending on duration of exposure. Materials that are respiratory irritants. Materials that cause severe, but reversible irritation to the eyes or are lachrymators. Materials that are primary skin irritants or sensitizers. **3** (materials that, under emergency conditions, can cause serious or permanent injury): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity is greater than 1,000 ppm but less than or equal to 3,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is greater than 0.5 mg/L but less than or equal to 2 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is greater than 40 mg/kg but less than or equal to 200 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is greater than 5 mg/kg but less than or equal to 50 mg/kg. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC<sub>50</sub> for acute inhalation toxicity, if its LC<sub>50</sub> is less than or equal to 3000 ppm and that does not meet the criteria for degree of hazard 4.

## DEFINITION OF TERMS (Continued)

### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS:

**HEALTH HAZARD (continued): 3 (continued)** Compressed liquefied gases with boiling points between -30°C (-22°F) and -55°C (-66.5°F) that cause frostbite and irreversible tissue damage. Materials that are respiratory irritants. Cryogenic gases that cause frostbite and irreversible tissue damage. Materials that are corrosive to the respiratory tract. Materials that are corrosive to the eyes or cause irreversible corneal opacity. Materials that are corrosive to the skin. **4** (materials that, under emergency conditions, can be lethal): Gases and vapors whose LC<sub>50</sub> for acute inhalation toxicity less than or equal to 1,000 ppm. Dusts and mists whose LC<sub>50</sub> for acute inhalation toxicity is less than or equal to 0.5 mg/L. Materials whose LD<sub>50</sub> for acute dermal toxicity is less than or equal to 40 mg/kg. Materials whose LD<sub>50</sub> for acute oral toxicity is less than or equal to 5 mg/kg. Any liquid whose saturated vapor concentration at 20°C (68°F) is equal to or greater than one-fifth its LC<sub>50</sub> for acute inhalation toxicity, if its LC<sub>50</sub> is less than or equal to 1000 ppm.

**FLAMMABILITY HAZARD: 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand: Materials that will not burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in accordance with Annex D. **1** Materials that must be preheated before ignition can occur. Materials in this degree require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur: Materials that will burn in air when exposed to a temperature of 816°C (1500°F) for a period of 5 minutes in accordance with Annex D. Liquids, solids and semisolids having a flash point at or above 93.4°C (200°F) (i.e. Class IIIB liquids). Liquids with a flash point greater than 35°C (95°F) that do not sustain combustion when tested using the *Method of Testing for Sustained Combustibility*, per 49 CFR 173, Appendix H or the UN *Recommendation on the Transport of Dangerous Goods, Model Regulations* (current edition) and the related *Manual of Tests and Criteria* (current edition). Liquids with a flash point greater than 35°C (95°F) in a water-miscible solution or dispersion with a water non-combustible liquid/solid content of more than 85 percent by weight. Liquids that have no fire point when tested by ASTM D 92 Standard Test Method for Flash and Fire Points by Cleveland Open Cup, up to a boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change. Combustible pellets with a representative diameter of greater than 2 mm (10 mesh). Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. Most ordinary combustible materials. **2** Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur. Materials in this degree would not under normal conditions form hazardous atmospheres with air, but under high ambient temperatures or under moderate heating could release vapor in sufficient quantities to produce hazardous atmospheres with air: Liquids having a flash point at or above 37.8°C (100°F) and below 93.4°C (200°F) (i.e. Class II and Class IIIA liquids.) Solid materials in the form of powders or coarse dusts of representative diameter between 420 microns (40 mesh) and 2 mm (10 mesh) that burn rapidly but that generally do not form explosive mixtures in air. Solid materials in fibrous or shredded form that burn rapidly and create flash fire hazards, such as cotton, sisal and hemp. Solids and semisolids that readily give off flammable vapors. Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **3** Liquids and solids that can be ignited under almost all ambient temperature conditions. Materials in this degree produce hazardous atmospheres with air under almost all ambient temperatures or, though unaffected by ambient temperatures, are readily ignited under almost all conditions: Liquids having a flash point below 22.8°C (73°F) and having a boiling point at or above 37.8°C (100°F) and those liquids having a flash point at or above 22.8°C (73°F) and below 37.8°C (73°F) and below 37.8°C (100°F) (i.e. Class IB and IC liquids). Materials that, on account of their physical form or environmental conditions, can form explosive mixtures with air and are readily dispersed in air. Flammable or combustible dusts with a representative diameter less than 420 microns (40 mesh). Materials that burn with extreme rapidity, usually by reason of self-contained oxygen (e.g. dry nitrocellulose and many organic peroxides). Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent. **4** Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and will burn readily: Flammable gases. Flammable cryogenic materials. Any liquid or gaseous materials that is liquid while under pressure and has a flash point below 22.8°C (73°F) and a boiling point below 37.8°C (100°F) (i.e. Class IA liquids). Materials that ignite when exposed to air, Solids containing greater than 0.5 percent by weight of a flammable or combustible solvent are rated by the closed cup flash point of the solvent.

**INSTABILITY HAZARD: 0** Materials that in themselves are normally stable, even under fire conditions: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) below 0.01 W/mL. Materials that do not exhibit an exotherm at temperatures less than or equal to 500°C (932°F) when tested by differential scanning calorimetry.

### NATIONAL FIRE PROTECTION ASSOCIATION HAZARD RATINGS (continued):

**INSTABILITY HAZARD (continued): 1** Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 0.01 W/mL and below 10 W/mL. **2** Materials that readily undergo violent chemical change at elevated temperatures and pressures: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 10 W/mL and below 100W/mL. **3** Materials that in themselves are capable of detonation or explosive decomposition or explosive reaction, but that require a strong initiating source or that must be heated under confinement before initiation: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) at or above 100 W/mL and below 1000 W/mL. Materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures. **4** Materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures: Materials that have an estimated instantaneous power density (product of heat of reaction and reaction rate) at 250°C (482°F) of 1000 W/mL or greater. Materials that are sensitive to localized thermal or mechanical shock at normal temperatures and pressures.

### FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the **National Fire Protection Association (NFPA)**. **Flash Point** - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature**: The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL** - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL** - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

### TOXICOLOGICAL INFORMATION:

**Human and Animal Toxicology:** Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD<sub>50</sub>** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC<sub>50</sub>** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m<sup>3</sup>** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **Cancer Information:** The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **Other Information:** **BEI** - ACGIH Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

### ECOLOGICAL INFORMATION:

EC is the effect concentration in water. **BCF** = Bioconcentration Factor, which is used to determine if a substance will concentrate in lifeforms which consume contaminated plant or animal matter. **TL<sub>m</sub>** = median threshold limit; Coefficient of Oil/Water Distribution is represented by **log K<sub>ow</sub>** or **log K<sub>oc</sub>** and is used to assess a substance's behavior in the environment.

### REGULATORY INFORMATION:

#### U.S. and CANADA:

This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **ACGIH**: American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (**OSHA**). **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act (**SARA**); the Canadian Domestic/Non-Domestic Substances List (**DSL/NDSL**); the U.S. Toxic Substance Control Act (**TSCA**); Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act (**CERCLA** or **Superfund**); and various state regulations. This section also includes information on the precautionary warnings which appear on the material's package label. **OSHA** - U.S. Occupational Safety and Health Administration.

**EUROPEAN:** **EU** is the European Union (formerly known as the **EEC**, European Economic Community). **EINECS**: This the European Inventory of Now-Existing Chemical Substances. The **ARD** is the European Agreement Concerning the International Carriage of Dangerous Goods by Road and the **RID** are the International Regulations Concerning the Carriage of Dangerous Goods by Rail. **AUSTRALIAN:** **AICS** is the Australian Inventory of Chemical Substances. **NOHSC**: National Occupational Health & Safety Code.